

Search Plan and Results

Question

[What is the relationship between glycemic index or glycemic load and body weight? \(DGAC 2010\)](#)

Date Searched

03/18/09

Inclusion Criteria

- June 2004 to March 2009
- Human subjects
- English language
- International
- *Sample size*: Minimum of 10 subjects per study arm; preference for larger sizes, if available
- *Dropout rate*: Less than 20%; preference for smaller dropout rates
- *Ages*: Children, two to 18 years; adults, 19 years and older
- *Populations*: Healthy and those with elevated chronic disease risk.

Exclusion Criteria

- Reviews (narrative and systematic reviews), meta-analyses
- Medical treatment or therapy, including medical treatment of diabetes
- Diseased subjects (already diagnosed with disease related to study purpose)
- Hospitalized patients
- Animal studies
- In vitro studies
- Articles not peer reviewed (websites, magazine articles, Federal reports, etc.).

Search Terms: Search Vocabulary

(“Glycemic Index[Mesh] OR “glycemic load”) AND “Body Weights and Measures”[Mesh]] OR “body composition”[mh])

Electronic Databases

PubMed.

Total hits from all electronic database searches: 232

Total articles identified to review from electronic databases: 45

Articles Identified Via Handsearch or Other Means

Hand Search (Three Articles)

Liese AD, Schulz M, Fang F, Wolever TM, D'Agostino RB Jr, Sparks KC, Mayer-Davis EJ. [Dietary glycemic index and glycemic load, carbohydrate and fiber intake, and measures of insulin sensitivity, secretion, and adiposity in the Insulin Resistance Atherosclerosis Study.](#) *Diabetes Care.* 2005 Dec; 28(12): 2, 832-2, 838. PMID: 16306541. (Hand search)

Milton JE, Briche B, Brown IJ, Hickson M, Robertson CE, Frost GS. [Relationship of glycaemic index with cardiovascular risk factors: Analysis of the National Diet and Nutrition Survey for people aged 65 and older.](#) *Public Health Nutr.* 2007 Nov; 10(11): 1, 321-1, 335. Epub 2007 Apr 24. PMID: 17456246. (Hand search)

Philippou E, Neary NM, Chaudhri O, Brynes AE, Dornhorst A, Leeds AR, Hickson M, Frost GS. The effect of dietary glycemic index on weight maintenance in overweight subjects: A pilot study. *Obesity (Silver Spring).* 2009 Feb; 17(2): 396-401. Epub 2008 Dec 4. (Hand search)

Summary of Articles Identified to Review

Number of Primary Articles Identified: 22

Number of Review Articles Identified: 0

Total Number of Articles Identified: 22

Number of Articles Reviewed but Excluded: 26

List of Articles Included for Evidence Analysis

Abete I, Parra D, Martinez JA. [Energy-restricted diets based on a distinct food selection affecting the glycemic index induce different weight loss and oxidative response.](#) *Clin Nutr.* 2008 Aug; 27(4): 545-551. Epub 2008 Mar 4. PMID: 18308431.

Aston LM, Stokes CS, Jebb SA. [No effect of a diet with a reduced glycaemic index on satiety, energy intake and body weight in overweight and obese women.](#) *Int J Obes (Lond).* 2008 Jan; 32(1): 160-165. Epub 2007 Oct 9. PMID: 17923862.

de Rougemont A, Normand S, Nazare JA, Skilton MR, Sothier M, Vinoy S, Laville M. [Beneficial effects of a 5-week low-glycaemic index regimen on weight control and](#)

[cardiovascular risk factors in overweight non-diabetic subjects](#). *Br J Nutr*. 2007 Dec; 98(6): 1, 288-1, 298. Epub 2007 Jul 9. PMID: 17617942.

Deierlein AL, Siega-Riz AM, Herring A. [Dietary energy density but not glycemic load is associated with gestational weight gain](#). *Am J Clin Nutr*. 2008 Sep; 88(3): 693-699. PMID: 18779285.

Ebbeling CB, Leidig MM, Feldman HA, Lovesky MM, Ludwig DS. [Effects of a low-glycemic load vs low-fat diet in obese young adults: A randomized trial](#). *JAMA*. 2007 May 16; 297(19): 2, 092-2, 102. Erratum in: *JAMA*. 2007 Aug 8; 298(6): 627. PMID: 17507345.

Hare-Bruun H, Flint A, Heitmann BL. [Glycemic index and glycemic load in relation to changes in body weight, body fat distribution, and body composition in adult Danes](#). *Am J Clin Nutr*. 2006 Oct; 84(4): 871-879; quiz, 952-953. PMID: 17023715.

Hui LL, Nelson EA. [Meal glycaemic load of normal-weight and overweight Hong Kong children](#). *Eur J Clin Nutr*. 2006 Feb; 60(2): 220-227. PMID: 16278694.

Lau C, Toft U, Tetens I, Richelsen B, Jørgensen T, Borch-Johnsen K, Glümer C. [Association between dietary glycemic index, glycemic load, and body mass index in the Inter99 study: Is underreporting a problem?](#) *Am J Clin Nutr*. 2006 Sep; 84(3): 641-645. PMID: 16960180.

Liese AD, Schulz M, Fang F, Wolever TM, D'Agostino RB Jr, Sparks KC, Mayer-Davis EJ. [Dietary glycemic index and glycemic load, carbohydrate and fiber intake, and measures of insulin sensitivity, secretion, and adiposity in the Insulin Resistance Atherosclerosis Study](#). *Diabetes Care*. 2005 Dec; 28(12): 2, 832-2, 838. PMID: 16306541.

Maki KC, Rains TM, Kaden VN, Raneri KR, Davidson MH. [Effects of a reduced-glycemic-load diet on body weight, body composition, and cardiovascular disease risk markers in overweight and obese adults](#). *Am J Clin Nutr*. 2007 Mar; 85(3): 724-734. PMID: 17344493.

McMillan-Price J, Petocz P, Atkinson F, O'Neill K, Samman S, Steinbeck K, Caterson I, Brand-Miller J. [Comparison of 4 diets of varying glycemic load on weight loss and cardiovascular risk reduction in overweight and obese young adults: a randomized controlled trial](#). *Arch Intern Med*. 2006 Jul 24; 166(14): 1, 466-1, 475. PMID: 16864756.

Mendez MA, Covas MI, Marrugat J, Vila J, Schröder H. [Glycemic load, glycemic index, and body mass index in Spanish adults](#). *Am J Clin Nutr*. 2009 Jan; 89(1): 316-322. Epub 2008 Dec 3. PMID: 19056597.

Milton JE, Briche B, Brown IJ, Hickson M, Robertson CE, Frost GS. [Relationship of glycaemic index with cardiovascular risk factors: Analysis of the National Diet and Nutrition Survey for people aged 65 and older](#). *Public Health Nutr*. 2007 Nov; 10(11): 1, 321-1, 335. Epub 2007 Apr 24. PMID: 17456246.

Murakami K, Sasaki S, Okubo H, Takahashi Y, Hosoi Y, Itabashi M. [Dietary fiber intake, dietary glycemic index and load, and body mass index: A cross-sectional study of 3,931 Japanese women aged 18-20 years](#). *Eur J Clin Nutr*. 2007 Aug; 61(8): 986-995. Epub 2007 Jan 24. PMID: 17251928.

Nielsen BM, Bjørnsbo KS, Tetens I, Heitmann BL. [Dietary glycaemic index and glycaemic load in Danish children in relation to body fatness](#). *Br J Nutr*. 2005 Dec; 94(6): 992-997. PMID: 16351778.

Pal S, Lim S, Egger G. [The effect of a low glycaemic index breakfast on blood glucose, insulin, lipid profiles, blood pressure, body weight, body composition and satiety in obese and overweight individuals: a pilot study.](#) *J Am Coll Nutr.* 2008 Jun; 27(3): 387-393. PMID: 18838526.

Pereira MA, Swain J, Goldfine AB, Rifai N, Ludwig DS. [Effects of a low-glycemic load diet on resting energy expenditure and heart disease risk factors during weight loss.](#) *JAMA.* 2004 Nov 24; 292(20): 2, 482-2, 490. PMID: 15562127.

Philippou E, Neary NM, Chaudhri O, Brynes AE, Dornhorst A, Leeds AR, Hickson M, Frost GS. [The effect of dietary glycemic index on weight maintenance in overweight subjects: A pilot study.](#) *Obesity (Silver Spring).* 2009 Feb; 17(2): 396-401. Epub 2008 Dec 4.

Pittas AG, Roberts SB, Das SK, Gilhooly CH, Saltzman E, Golden J, Stark PC, Greenberg AS. [The effects of the dietary glycemic load on type 2 diabetes risk factors during weight loss.](#) *Obesity (Silver Spring).* 2006 Dec; 14(12): 2, 200-2, 209. PMID: 17189547.

Raatz SK, Torkelson CJ, Redmon JB, Reck KP, KwongCA, Swanson JE, Liu C, Thomas W, Bantle JP. [Reduced glycemic index and glycemic load diets do not increase the effects of energy restriction on weight loss and insulin sensitivity in obese men and women.](#) *J Nutr.* 2005 Oct; 135(10): 2, 387-2, 391. PMID: 16177201.

Sichieri R, Moura AS, Genelhu V, Hu F, Willett WC. [An 18-month randomized trial of a low-glycemic-index diet and weight change in Brazilian women.](#) *Am J Clin Nutr.* 2007 Sep; 86(3): 707-713. PMID: 17823436.

Sloth B, Krog-Mikkelsen I, Flint A, Tetens I, Björck I, Vinoy S, Elmståhl H, Astrup A, Lang V, Raben A. [No difference in body weight decrease between a low-glycemic-index and a high-glycemic-index diet but reduced LDL cholesterol after 10-week ad libitum intake of the low-glycemic-index diet.](#) *Am J Clin Nutr.* 2004 Aug; 80(2): 337-347. PMID: 15277154.

List of Excluded Articles with Reason

Article	Reason for Exclusion
Arumugam V, Lee JS, Nowak JK, Pohle RJ, Nyrop JE, Leddy JJ, Pelkman CL. A high-glycemic meal pattern elicited increased subjective appetite sensations in overweight and obese women. <i>Appetite.</i> 2008 Mar-May; 50(2-3): 215-222. Epub 2007 Jul 25. PMID: 17714828.	Does not include body weight in analyses.
Aston LM. Glycaemic index and metabolic disease risk. <i>Proc Nutr Soc.</i> 2006 Feb; 65(1): 125-134. Review. PMID: 16441952.	Study design is narrative review.
Astrup A. How to maintain a healthy body weight. <i>Int J Vitam Nutr Res.</i> 2006 Jul; 76(4): 208-215. Review. PMID: 17243084.	Study design is narrative review.

Barclay AW, Petocz P, McMillan-Price J, Flood VM, Prvan T, Mitchell P, Brand-Miller JC. Glycemic index, glycemic load, and chronic disease risk: A meta-analysis of observational studies. <i>Am J Clin Nutr.</i> 2008 Mar; 87(3): 627-637. Review. PMID: 18326601.	Does not include body weight in analyses.
Bornet FR, Jardy-Gennetier AE, Jacquet N, Stowell J. Glycaemic response to foods: impact on satiety and long-term weight regulation. <i>Appetite.</i> 2007 Nov; 49(3): 535-553. Epub 2007 May 3. Review. PMID: 17610996.	Study design is systematic review.
Buyken AE, Trauner K, Günther AL, Kroke A, Remer T. Breakfast glycemic index affects subsequent daily energy intake in free-living healthy children. <i>Am J Clin Nutr.</i> 2007 Oct; 86(4): 980-987. PMID: 17921374.	Does not include body weight in analyses.
Carels RA, Darby LA, Douglass OM, Cacciapaglia HM, Rydin S. Education on the glycemic index of foods fails to improve treatment outcomes in a behavioral weight loss program. <i>Eat Behav.</i> 2005 Feb; 6(2): 145-150. PMID: 15598601.	Does not answer question; examined behavioral weight loss program.
Davis MS, Miller CK, Mitchell DC. More favorable dietary patterns are associated with lower glycemic load in older adults. <i>J Am Diet Assoc.</i> 2004 Dec; 104(12): 1, 828-1, 835. PMID: 15565077.	Does not include body weight in analyses.
Díaz EO, Galgani JE, Aguirre CA, Atwater IJ, Burrows R. Effect of glycemic index on whole-body substrate oxidation in obese women. <i>Int J Obes (Lond).</i> 2005 Jan; 29(1): 108-114. Erratum in: <i>Int J Obes Relat Metab Disord.</i> 2005 Jul; 29(7): 879. PMID: 15505637.	Does not include body weight in analyses.
Fajcsak Z, Gabor A, Kovacs V, Martos E. The effects of six-week low glycemic load diet based on low glycemic index foods in overweight/obese children: Pilot study. <i>J Am Coll Nutr.</i> 2008 Feb; 27(1): 12-21. PMID: 18460477.	Sample size less than inclusion criteria.
Gibson LJ, Peto J, Warren JM, dos Santos Silva I. Lack of evidence on diets for obesity for children: A systematic review. <i>Int J Epidemiol.</i> 2006 Dec; 35(6): 1, 544-1, 552. Epub 2006 Sep 19. Review. PMID: 16984930.	Study design is systematic review.

<p>Hare-Bruun H, Nielsen BM, Grau K, Oxlund AL, Heitmann BL. Should glycemic index and glycemic load be considered in dietary recommendations? <i>Nutr Rev.</i> 2008 Oct; 66(10): 569-590. Review. PMID: 18826453.</p>	<p>Study design is narrative review.</p>
<p>Henry CJ, Lightowler HJ, Dodwell LM, Wynne JM. Glycaemic index and glycaemic load values of cereal products and weight-management meals available in the UK. <i>Br J Nutr.</i> 2007 Jul; 98(1): 147-153. Epub 2007 Mar 30. PMID: 17397560.</p>	<p>Does not answer question: examined product availability in the UK.</p>
<p>Henry CJ, Lightowler HJ, Strik CM. Effects of long-term intervention with low- and high-glycaemic-index breakfasts on food intake in children aged 8 to 11 years. <i>Br J Nutr.</i> 2007 Sep; 98(3): 636-640. Epub 2007 Apr 23. PMID: 17451613.</p>	<p>Does not include body weight in analyses.</p>
<p>Jiménez-Cruz A, Gutiérrez-González AN, Bacardi-Gascon M. Low glycemic index lunch on satiety in overweight and obese people with type 2 diabetes. <i>Nutr Hosp.</i> 2005 Sep-Oct; 20(5): 348-350. PMID: 16229403.</p>	<p>Participants diagnosed with type 2 diabetes.</p>
<p>Kim K, Yun SH, Choi BY, Kim MK. Cross-sectional relationship between dietary carbohydrate, glycaemic index, glycaemic load and risk of the metabolic syndrome in a Korean population. <i>Br J Nutr.</i> 2008 Sep; 100(3): 576-584. Epub 2008 Mar 10. PMID: 18328117.</p>	<p>Does not answer question; examined relationship between glycemic index and glycemic load and risk of metabolic syndrome.</p>
<p>Krishnan S, Rosenberg L, Singer M, Hu FB, Djoussé L, Cupples LA, Palmer JR. Glycemic index, glycemic load, and cereal fiber intake and risk of type 2 diabetes in US black women. <i>Arch Intern Med.</i> 2007 Nov 26;167(21):2304-9. PMID: 18039988 [PubMed - indexed for MEDLINE]</p>	<p>Does not answer question; examined relationship between glycemic index and glycemic load and risk of type 2 diabetes.</p>
<p>Lajous M, Boutron-Ruault MC, Fabre A, Clavel-Chapelon F, Romieu I. Carbohydrate intake, glycemic index, glycemic load, and risk of postmenopausal breast cancer in a prospective study of French women. <i>Am J Clin Nutr.</i> 2008 May; 87(5): 1, 384-1, 391. PMID: 18469262.</p>	<p>Does not answer question; examined relationship between glycemic index and glycemic load and breast cancer.</p>
<p>Liu S. Lowering dietary glycemic load for weight control and cardiovascular health: A matter of quality. <i>Arch Intern Med.</i> 2006 Jul 24; 166(14): 1, 438-1, 439. PMID: 16864751.</p>	<p>Publication is editorial.</p>

<p>Livesey G, Taylor R, Hulshof T, Howlett J. Glycemic response and health--a systematic review and meta-analysis: Relations between dietary glycemic properties and health outcomes. <i>Am J Clin Nutr.</i> 2008 Jan; 87(1): 258S-268S. Review. PMID: 18175766.</p>	<p>Study design is systematic review/meta-analysis.</p>
<p>Newby PK. Are dietary intakes and eating behaviors related to childhood obesity? A comprehensive review of the evidence. <i>J Law Med Ethics.</i> 2007 Spring; 35(1): 35-60. Review. PMID: 17341216.</p>	<p>Study design is narrative review.</p>
<p>Schulz M, Liese AD, Fang F, Gilliard TS, Karter AJ. Is the association between dietary glycemic index and type 2 diabetes modified by waist circumference? <i>Diabetes Care.</i> 2006 May; 29(5): 1, 102-1, 104. PMID: 16644644.</p>	<p>Does not answer question; examined relationship between glycemic index and type 2 diabetes.</p>
<p>Smith MA, Foster JK. The impact of a high versus a low glycaemic index breakfast cereal meal on verbal episodic memory in healthy adolescents. <i>Nutr Neurosci.</i> 2008 Oct; 11(5): 219-227. PMID: 18782482.</p>	<p>Does not answer question; examined relationship between glycemic index and memory.</p>
<p>Thomas DE, Elliott EJ, Baur L. Low glycaemic index or low glycaemic load diets for overweight and obesity. <i>Cochrane Database Syst Rev.</i> 2007 Jul 18; (3): CD005105. Review. PMID: 17636786.</p>	<p>Study design is systematic review.</p>
<p>Ukleja A, Kunachowicz H, Pachocka L. The use of glycaemic index in the prevention of cardiovascular diseases. <i>Rocz Panstw Zakl Hig.</i> 2007; 58(1): 145-151. Review. PMID: 17711103.</p>	<p>Study design is narrative review.</p>
<p>Wylie-Rosett J, Segal-Isaacson CJ, Segal-Isaacson A. Carbohydrates and increases in obesity: Does the type of carbohydrate make a difference? <i>Obes Res.</i> 2004 Nov; 12 Suppl 2: 124S-129S. Review. PMID: 15601960.</p>	<p>Study design is narrative review.</p>